process that is critically dependent upon careful and coordinated execution to avoid disrupting the customer's service. Pfau Aff. ¶¶ 35-47. Experience has shown that this work has been prone to error (*see infra* Part IV.B.2.b), and is very expensive, because it requires skilled labor and coordinated timing among incumbent LEC and CLEC technicians. Pfau Aff. ¶¶ 22-23, 34-77. Based on AT&T's experience in New York, AT&T estimates that the hot-cut and porting process adds costs of about $45 per line merely to bring a customer's loop to the CLEC's collocated space. *Id.* ¶¶ 22-23, 29. Notably, this $45 figure does not include the costs that a CLEC would incur to perform its own provisioning and essential management and oversight process for coordinated hot cuts. *Id.* ¶ 29.

ii. CLECs Must Also Incur Substantial Capital Costs To Extend Customers' Loops To Their Switches.

In addition to the costs of coordinated hot cuts, a CLEC must also incur the costs and time for establishing collocated space at the incumbent LEC's central offices. CLECs incur these collocation costs in addition to the costs of constructing their own central office space to house their own switches. Indeed, AT&T estimates that for any equipment installed in collocated space, a CLEC currently can expect to incur additional costs of between 15% and 20% of the equipment costs to establish and condition the requisite collocation space. Pfau Aff. ¶ 25. Establishing collocation space also continues to be a lengthy process for CLECs. *Id.* ¶¶ 16-17. This remains true no matter what type of collocation is used, and despite the much-appreciated efforts of federal and state regulators to ease the CLECs' burdens in obtaining it.

After CLEC customers' loops are brought into the CLEC's collocated space, the CLEC must then extend those loops to its switches. This is accomplished first by deploying digital loop carrier equipment ("DLC") that converts the analog loops delivered by the incumbent LEC to a digital signal format and then concentrates and multiplexes those signals into a DS1 format.

Pfau Aff. ¶ 26. AT&T estimates that the cost of this equipment, including the pro-rated costs to establish the collocation space where the equipment is deployed, will be about $117 per line. *Id.* In addition, a CLEC would incur numerous other costs, not quantified here, such as costs of engineering and deploying collocated equipment and the costs of interoffice transport facilities, which will likely entail further multiplexing and possibly conversion from an electrical to optical format. *Id.* ¶¶ 28-30. Each of these functionalities adds costs for the CLEC that the incumbent LEC does not incur. Thus, even considering only those portions of the costs of extending loops to the CLEC switch that AT&T has quantified here for New York (that is, the cost of a hot cut and the per/line cost of purchasing and installing DLC), it is evident that a CLEC must make an upfront investment of over $150 per line before the CLEC's first customer can even get dial tone.

iii. New Entrants Lack The Experience And Historical Data Necessary To Deploy Their Own Switching And Transport Facilities As Efficiently As Incumbent LECs.

CLECs deploying their own switches also will incur yet additional costs not quantified here because they cannot efficiently design a facilities-based network without knowing who their customers will be and what those customers' historical traffic patterns have been. That data is essential for any carrier to deploy the correct size and type of switches at optimal levels of capacity and in locations that most efficiently serve the carrier's unique customer base. *See* Pfau Aff. ¶¶ 14-15, 32 (detailing the critical need to determine where and what type of switching and transport facilities to deploy). Although incumbent LECs have such data readily available based upon decades of experience monitoring their own customers' demand, new entrants lack this base of information. To enter the local market on a broad scale using their own switches, CLECs would have to deploy those switches relying on little more than guesswork about the location and calling patterns of those customers they are able to win from the incumbent. Conversely,

with access to combinations of unbundled elements that include switching, a CLEC could enter local markets on a broad scale, monitor traffic and usage patterns, and then efficiently deploy facilities where economically sensible in the size, type, and locations warranted by the CLEC's customer base.

c. The CLECs' Need For Access To Unbundled Shared Transport Independently Supports The Need For Unbundled Switching.

The inefficiencies inherent in attempting to deploy a network of switches before commencing broad-scale mass-market local entry point to a related but independent and important reason supporting the need for access to unbundled local switching. The Commission has previously found on two occasions that new entrants need access to unbundled shared transport in order to compete effectively with incumbent LECs. In the *Shared Transport Order*, the Commission found that denying CLECs access to unbundled shared transport "would significantly increase the requesting carriers' costs of providing local exchange service and thus reduce competitive entry into the local exchange market." *Shared Transport Order*, 12 FCC Rcd at 12481 ¶ 34. For the same reason, the Commission required Bell Atlantic to provide unbundled shared transport as a condition of its merger with NYNEX.[185] These two prior decisions provide independent and compelling support for designating as an unbundled network element not merely shared transport, but local switching as well. Only with access to unbundled switching can a CLEC obtain access to unbundled shared transport.

In the *Shared Transport Order*, the Commission explained that "access to transport facilities on a shared basis is particularly important for stimulating initial competitive entry into

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[185] *See* Memorandum Opinion and Order, *In the Applications of NYNEX Corp., Transferor and Bell Atlantic Corp., Transferee, For Consent to Transfer Control of NYNEX Corp. and its Subsidiaries*, 12 FCC Rcd. 19985, ¶¶ 199-200 (1997) ("*Bell Atlantic NYNEX Merger Order*").

the local exchange market." *Shared Transport Order*, 12 FCC Rcd at 12482 ¶ 35. The Commission noted that incumbent LECs "have significant economies of scope, scale, and density in providing transport facilities" that new entrants cannot replicate. *Id.* In particular, because "new entrants have not yet had an opportunity to determine traffic volumes and routing patterns," they "would almost inevitably miscalculate the capacity or routing patterns" when purchasing dedicated transport UNEs or deploying their own transport facilities. *Id.* In addition, "new entrants would be hindered by significant transaction costs if they were required to continually reconfigure the unbundled transport elements as they acquired customers." *Id. See Bell Atlantic NYNEX Merger Order* ¶¶ 199-200 (same).

The facts and analysis that supported the Commission's previous findings regarding the new entrants' need for access to unbundled shared transport remain true today. Lacking the data on traffic volumes and routing patterns needed to design an efficient network, CLECs would likely end up with a service that either has more blocking than the incumbent LEC's (because CLECs purchased too few trunks) or that costs more than the traffic warrants (because CLECs purchased more equipment or trunks than necessary). Pfau Aff. ¶ 32. It is therefore essential for new entrants to be able to take advantage of the incumbent's economies of scale, scope, and density, thereby giving competition a chance to develop and CLECs the ability to build efficient networks to meet actual demand and existing customers' needs.

To obtain the benefits of shared transport, however, CLECs need access to unbundled local switching. That is because it is impossible, as an engineering matter, for a CLEC to take advantage of an incumbent LEC's shared transport element unless the CLEC can also obtain that incumbent LEC's unbundled switching element. Pfau Aff. ¶¶ 84-86. The only way to give CLECs the ability to design and deploy an efficient facilities-based network that will enable

CLECs to enter the local market rapidly and on a broad scale and remain competitive over time is to permit them to compete using a platform of unbundled network elements that includes unbundled switching.

2. The Coordinated Hot-cut Process Independently And Severely Impairs The CLECs' Ability To Enter the Local Market On A Broad Scale, Mass Market Basis.

Even if CLECs did not face these serious cost disadvantages in attempting to provide local service using their own switches, CLECs would still need access to unbundled switching to avoid severe impairment of a different kind. The coordinated hot cuts that must be used to convert customers to a CLEC's switch are too labor-intensive and error-prone to accommodate the millions of residential and business customers nationwide that can be expected to switch to CLECs in a robustly competitive market. This manual activity cannot be performed in the large volumes that broad-based, mass market entry requires and would subject CLECs' customers to unacceptably high risks of prolonged service outages. Indeed, even for very small volumes of customers that CLECs affirmatively want to serve with their own switches – a fraction of those that a fully competitive market would generate – incumbent LECs have not been able to perform coordinated hot cuts without disrupting the service of CLEC customers, with some outages lasting several days. Thus, it is obvious that such a process cannot support competition for all customer segments.[186]

By comparison, long-distance consumers request tens of millions of PIC changes per year, all of which are carried out quickly and reliably by means of an automated, software-driven process. The development of robust local competition in all segments of the local market

[186] Of course, this does not excuse incumbents from their obligation to provide new entrants with commercial volumes of unbundled loops for customers that can economically be served through this entry strategy today.

requires a similar automated process. The only option currently available for CLECs that meets this standard is to allow CLECs access to unbundled switching and UNE-P. Once incumbent LECs provide such access and fully functioning and nondiscriminatory OSS, they would be able "to efficiently switch over customers as soon as the new entrants win them." *Ameritech Michigan Order* ¶ 21. In sum, subjecting all CLEC customers to the coordinated hot cut process would severely restrict the number of customers CLECs would serve and would relegate CLEC customers to inherently poorer service quality. Both of these disadvantages severely impair CLECs' ability to offer competitive service.

a. Because Of The Manual Steps And Close Coordination Inherent In The Hot Cut Process, Incumbent LECs Cannot Provide Them In Sufficient Volumes To Support Widespread Competition.

Coordinated hot cuts cannot be performed in the large volumes necessary to support widespread competitive entry. The incumbent LECs' capacity to perform hot cuts is inherently limited by the numerous manual steps that are performed by error-prone human labor in locations that are not susceptible to the deployment of large work teams. Unlike a purely electronic provisioning process, such as the PIC-change process employed to move customers among competitive long distance companies, or the comparable process that would enable CLECs to offer service using a combination of UNEs that included unbundled switching, reliance on the hot cut process would effectively and severely limit the number of customers that CLECs could serve. Pfau Aff. ¶¶ 62-72.

The number of hot cuts that incumbent LECs can perform is limited by at least three factors. First, the process is labor intensive. To perform a coordinated hot cut correctly and minimize the time a customer's service is disrupted, incumbent LECs must establish and follow detailed methods and procedures. Pfau Aff. ¶¶ 34, 43-46. Because of the number and

complexity of each of these steps – each of which, if not properly carried out, can cause service problems – a coordinated hot cut necessarily takes a significant amount of time to perform correctly. *See id.* ¶¶ 63-68. Second, these manual activities must be performed by trained technicians. *Id.* ¶¶ 46, 64. Third, typically only two to three teams of incumbent LEC technicians can efficiently work simultaneously to provision hot cuts on a single main distribution frame without interfering with each other's work and reducing everyone's productivity. *Id.* ¶ 65.

In fact, incumbent LECs have generally been unable to demonstrate that they can reliably perform large volumes of hot cuts. Experience to date demonstrates that most incumbent LECs struggle to perform them correctly even in very small volumes. For example, in New York, an extensive third party report issued by KPMG Peat Marwick concluded that Bell Atlantic-New York ("BA-NY") continued to make numerous mistakes in executing coordinated hot cuts, even though the numbers of orders BA-NY received was no more than 100 to 150 per day on a statewide basis. *See* KPMG Final Report (Draft), Apr. 19, 1999, POP-3, IV-65-70 (Pfau Aff. Att. 5); Joint Affidavit of Raymond Crafton et al. on Behalf of AT&T Corp., Case No. 97-C-0271 ¶¶ 131-46 (N.Y. P.S.C. Apr. 28, 1999) ("AT&T NY PSC Joint Aff.") (Pfau Aff. Att. 8). And in April, 1999, Bell Atlantic admitted that its teams of frame technicians can handle only two or three hot cuts per hour. *Id.* ¶ 146 (citing BA-NY's "UNE Hot Cut Scalability Plan", pp. 6-7 (Apr. 8, 1999)). Indeed, BA-NY recently and effectively acknowledged its inability to adequately perform sufficient numbers of coordinated hot cuts to meet CLECs' demand for only one market segment when it announced a new "UNE Loop Insurance Program" that would allow CLECs to "request. . .UNE-P as a substitute for Hot Cuts" if "BANY is not capable of providing hot cuts." Pfau Aff. Att. 6. Although the proposed program contains so many loopholes that

CLECs could not possibly base a viable business plan upon it, BA-NY's offer essentially admits what CLECs have long recognized: that UNE-P offers the best hope of introducing immediate and widespread local competition in all market segments, while relying on coordinated hot cuts could never fulfill that goal.

An extrinsic limit on the number of incumbent LEC customers that can be converted to a competing LEC's service is fundamentally inconsistent with the Act's goals and with the nature of truly robust local competition. As the Commission has repeatedly recognized, an incumbent LEC must be able to provision "the order volumes and fluctuations reasonably expected in [the] competitive marketplace," *Ameritech Michigan Order* ¶ 199, not a contrived limit based on the incumbent LECs' manual processing capabilities. *See id.* ¶ 21 (the local market is not "open to competition" unless a BOC is "fully cooperating with new entrants to efficiently switch over customers as soon as the new entrants win them").

It is critical in this context to recognize that competitive markets do not operate in an orderly fashion. For new entrants in particular, broad scale entry will undoubtedly produce pronounced fluctuations in demand. CLECs entering the market will not be able accurately to predict in advance how many customers incumbent LEC technicians will need to convert in a given central office on a given day. In contrast to automated processes that enable CLECs (and incumbent LECs) to deal with such fluctuations in demand for long distance service, the manual hot-cut procedure simply cannot respond to these significant and unpredictable swings in demand. Broad-based CLEC market entry also will lead to significant and unpredictable variations in the geographic locations where hot cuts must be performed. For many rural or suburban central offices in particular, it would be difficult for an incumbent LEC to satisfy this

demand promptly because such offices are not regularly staffed with technicians. Pfau Aff. ¶¶ 69-70. None of these impediments occur in a UNE-P environment.

Moreover, incumbent LECs do not perform manual cutovers for their own customers under the competitive circumstances for which they perform them for CLECs' customers. When an incumbent LEC's customer requires a change in service – for example, when the customer is moving – the incumbent LEC typically does not physically remove facilities, but simply turns the service off or on using an automated function within its switch. Pfau Aff. ¶¶ 73-74 & n.27 and Atts. 11-13. Because of the inefficiency of the manual work associated with cutovers, incumbent LECs have testified that their "goal is to maintain dedicated inside and outside plant" – in other words, to avoid the manual work associated with manual cutovers. *See id.*[187] Because an incumbent LEC does not perform manual cutovers in situations analogous to the cutover a customer to a CLEC, it would be unlawfully discriminatory to require CLECs to rely on coordinated hot cuts. *See First Report and Order* ¶ 421. In addition, the hot cut procedure cannot be employed at all for loops served through certain types of integrated digital loop carrier (IDLC) systems. Pfau Aff. ¶¶ 71-72. For this significant portion of loops – in some regions up to 20 percent – the loop is carried directly to switch, and a hot cut cannot be performed at all, unless the customer's IDLC loop can be replaced with another facility of equal quality in a

[187] And when incumbent LECs do perform cutovers for their customers – for example, when changing an existing PBX customer to Centrex service – the incumbent LEC is afforded significant time to plan for the cutovers. Pfau Aff. ¶ 75. In contrast, when an incumbent LEC must perform coordinated hot cuts for CLECs' new customers, it does not become informed of either the numbers of hot cuts it must provision or the locations where they must be provisioned until just a few days before it is obligated to implement the conversion. *Id.*

commercially reasonable time. *Id.* ¶¶ 41-42. For these IDLC customers a denial of access to unbundled switching may equate to a denial of an effective competitive choice of providers.[188]

b. Hot Cuts Have Resulted In Inherently Inferior Service For CLEC Customers Because They Require Service Outages And Present Significant Risks Of Service Disruption.

Hot cuts also are inherently inconsistent with the development of mass market local competition because they subject consumers to unacceptable risks of service outages. A hot cut necessarily takes a customer out of service for at least some period. Given the reliance on manual work and, where number portability is required, the need for close coordination between incumbent LEC and CLEC technicians, there is a significant risk that an outage will become prolonged. Notably, the hot cut process renders the CLEC most dependent on incumbent LEC resources at the time when the CLEC's reputation for reliability as a provider of local service has yet to be established. Hot cuts, if poorly performed, impair the CLEC's ability to offer competitive service that is truly equal in quality and may also impair a CLECs' brand, because hot cut-related service outages will be attributed to the CLEC and discussed publicly by affected customers and even the media. *See* Pfau Aff. ¶¶ 48-61 & n.25 (discussing problems to date and citing news accounts reporting on problems encountered by CLECs' customers with conversion process).

CLEC experience painfully confirms that mishandled hot cuts have caused numerous and prolonged service outages and harmed the competitive process. In New York, KPMG's test found that Bell Atlantic "*systematically* d[id] not follow [its] prescribed process" for performing hot cuts, which caused "the customer's service [to] be disrupted" and resulted in problems not

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[188] This problem must clearly be resolved, because the Commission has already ruled that the fact that a customer is served by an IDLC loop cannot preclude CLECs from an opportunity to benefit from competition. *First Report and Order* ¶ 383.

being identified "until the customer is out of service." KPMG Final Report (Draft), Apr. 19, 1999, POP-3, IV-66 (Pfau Aff. Att. 5) (emphasis added). BA-NY, at the behest of the New York PSC, agreed to revamp its coordinated hot cut procedures, but even the revised process – which requires 13 mostly manual steps and significant coordination – has provided very poor performance. During the first four weeks of the new procedures, when AT&T sent only 54 orders, nine of those orders – 17 percent of the total – resulted in a significant service outage caused by BA-NY. Pfau Aff. ¶ 50. These outages ranged from about one to more than 48 hours. *Id.* ¶ 51. Moreover, approximately 25 percent of the confirmations BA-NY returned for those orders contained errors or were incomplete. *See id.* ¶¶ 50, 57; AT&T Joint NY PSC Aff. ¶ 144 (Pfau Aff. Att. 8). In weeks five through seven of working under the new procedures, BA-NY's performance *worsened*: for example, with only slightly higher order volumes (37 orders), BA-NY caused service outages in 38 percent of the orders in week seven. Pfau Aff. ¶ 50. Outages in that week lasted as long as four to seven days. *Id.* ¶ 51.

Other incumbent LEC's performance has caused similar problems. For example, in Florida, numerous consumers have complained to the state PSC that their request to change local service providers has caused outages, which apparently were caused by BellSouth's hot cut procedures. *Id.* ¶ 53. And in Utah, U S West's repeated failure – on virtually 100 percent of AT&T's orders – to perform number portability properly in conjunction with the manual hot cut has left AT&T customers without the ability to receive incoming calls for a period of one day up to an entire week. *Id.*

The service outages caused by hot-cut provisioning have adversely affected not only individual customers and CLECs but the entire competitive process. As customers hear of problems with converting to one CLEC's local service, they associate these problems with all

CLECs. *See* Pfau Aff. ¶ 61 (citing "Business Left Incommunicado After Trying To Switch Local Phone Service", Fort-Lauderdale Sun-Sentinel, May 11, 1999). As a result, many potential customers are likely to conclude that it is too risky to change carriers.

These negative consequences can be minimized if CLECs are permitted to use an entry strategy that includes use of unbundled switching and the unbundled element platform for broad market entry. With both UNE-P and fully functioning OSS, CLECs can compete right away for all types of business or residential customers, by establishing service promptly and reliably through an electronic conversion process that carries little risk of a service outage. Indeed, the incumbent LECs that offer long distance services will benefit from just such a process when they win new long distance customers. A customer's decision to change long-distance providers is implemented with a mere software change, and incumbent LECs routinely process millions of such changes each month. CLECs need a comparably efficient process to be able to compete on a similar scale for local customers.

Thus, denying CLECs access to unbundled switching and UNE-P would severely impair CLECs' ability to offer local service because there is no viable alternative for broad-scale mass market entry. As noted above, resale is neither a valid nor a practical alternative to UNE-based entry. Similarly, the facilities-based alternatives to use of unbundled loops and a CLEC's own switch (e.g., cable telephony, fixed wireless) are not capable today of supporting broad-scale market entry. *See supra* Part IV.A. Thus, neither resale nor other facilities-based alternatives are reasonable substitutes for CLEC access to unbundled local switching and combinations of elements that use switching.

Indeed, perhaps the best evidence that denying CLECs access to unbundled switching and UNE-P will not lead to mass-market, switch-based entry is the experience of the last three

years. Throughout that period, unbundled switching and UNE-P have not been available because of the incumbent LECs' legal challenge to Rule 315(b). The pace at which CLECs have been able to deploy their own switches – and the narrow market segments that they serve – is thus a reasonable proxy for the pace of local competition in the near future in the absence of unbundled switching and UNE-P. To ensure that the goals of the Telecommunications Act are met, it is therefore critical to provide CLECs with access to unbundled switching and UNE-P.

C. Shared Transport

The Commission has twice re-affirmed that CLECs' ability to provide competing local service would be significantly impaired if they were denied access to shared transport, and those conclusions remain equally valid today. In its *Shared Transport Order*, issued in this docket after consideration of an expanded record, the Commission rejected the view that CLECs could rely solely on dedicated transport or on their own facilities and found instead that denying access to shared transport "would significantly increase [CLECs'] costs" and thereby would "reduce competitive entry into the local exchange market." *Shared Transport Order* ¶ 34. That finding is supported by the existing record and is sufficient to demonstrate that CLECs would be impaired in offering local service if access to unbundled transport were denied.

As the Commission concluded in the *Shared Transport Order*, CLECs could not enter using dedicated transport because they have "not yet had an opportunity to determine traffic volumes and routing patterns," which would cause them "almost inevitably [to] miscalculate the capacity or routing patterns." *Id.* ¶ 35. These miscalculations would result in an inefficiently deployed network, and would significantly raise CLECs' costs. Pfau Aff. ¶¶ 32, 85. In addition, it remains true today, as the Commission found in the *Shared Transport Order*, that incumbent LECs maintain "significant economies of scope, scale and density in providing transport

facilities." *Shared Transport Order* ¶ 35. CLECs lack these economies of scale, and would incur significant costs if they had to rely on dedicated transport: "dedicated transport is *not economically feasible* at low penetration rates" that CLECs would likely obtain, and therefore denying shared transport "would create a significant barrier to entry." *Id.* The Commission's findings on these points – which it re-affirmed in the *Bell Atlantic/NYNEX Merger Order* ¶¶ 199, 200 – provide an ample basis for unbundling shared transport.

D. Tandem Switching

For many of these same reasons that apply to shared transport, denying access to incumbent LECs' unbundled tandem switching likewise would significantly impair CLECs' ability to offer competing local service. A tandem switch is deployed to improve network efficiency and to assure high quality service, particularly low call-blocking levels. Pfau Aff. ¶¶ 87-88. CLECs will rely on tandem switching for the same reasons – it allows them to route their traffic more directly and efficiently. Tandem switching is also critical for CLECs in providing a "transit" functionality to interconnect traffic with other carriers. It allows a CLEC to aggregate its traffic, and then more efficiently exchange it with other LECs.

If CLECs were denied access to incumbent LECs' unbundled tandem switching, CLECs would be required to provision direct trunk groups from their own tandem switch to most CLECs' local switches serving the area in order to exchange traffic with other CLEC customers. That is not only time-consuming and costly, it is ultimately inefficient, because, as described above, *supra* p. 108, CLECs will not initially have sufficient traffic volumes to justify dedicated transport to many end offices. Pfau Aff. ¶ 85. Accordingly, the Commission should re-affirm its prior conclusion and allow CLECs to aggregate their traffic and take advantage of the economies of scale offered by use of unbundled tandem switching, (*First Report and Order* ¶¶ 425-26).

E. Signaling and Call-Related Databases

If CLECs vitally need access to unbundled switching – and they do – then it necessarily follows that CLECs have an equally vital need for unbundled access to the signaling systems and databases that uniquely support a given incumbent LEC switch. Signaling networks are used in conjunction with switches to control the call processing flow of telephone traffic. *First Report and Order*, ¶ 455-58. When a new entrant purchases the local switching element from the incumbent LEC, it must also obtain signaling from the incumbent LEC, because each incumbent LEC switch is programmed to home onto a single pair of signal transfer points (STPs) within the incumbent LEC signaling network that provides the call routing information. Pfau Aff. ¶¶ 89-90. It is not technically feasible to link a given switch to more than one pair of STPs. *Id.* Accordingly, CLECs that use an incumbent LECs' unbundled switching must necessarily be permitted access to the incumbent LECs' signaling network. CLECs would not simply be impaired without that access – the switching function would for all practical purposes be inoperable for calls to points beyond the local office's serving area.

Similarly, CLECs also need unbundled access to those databases that uniquely support each incumbent LEC's switch. A local switch uses the signaling network to access a single centralized call processing database assigned a particular functionality. Pfau Aff. ¶ 90. Examples include the LIDB, 800 Number, Caller Name, and LRN databases. Thus, for the unbundling rules to have meaning, CLECs that access the unbundled switching element must be able to use the incumbent LEC's signaling network and databases. *Id.*

F. Dedicated Transport.

The unavailability of unbundled dedicated transport would impair significantly the ability of CLECs to enter local markets.[189] If incumbent LECs are not required to provide access to dedicated transport on an unbundled basis, CLECs will be forced either to self-provide this critical network element or to utilize third-party vendors. Self-provision may be infeasible in some instances due to limitations on collocation space and rights-of-way, and, in any event, entails excessive delays and costs that prevent it from serving as an effective means to develop widespread local competition. Dedicated transport made available through third-party vendors also is an insufficient alternative due to its limited availability and the fact that third parties are not subject to Sections 251 and 252.[190]

In contrast, the general availability of unbundled dedicated transport at cost-based rates promotes rapid entry into local markets. In most instances, incumbent LECs already have dedicated facilities available to meet CLECs' needs. As a result, access to unbundled dedicated transport significantly reduces CLECs' provisioning intervals by allowing them to avoid the excessive delays associated with self-provisioning. The cost savings are critical as well. Where unbundled dedicated transport is available, an entrant does not incur the substantial costs associated with (i) negotiating and litigating right-of-way agreements with local municipalities

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[189] The Commission already has found that transmission facilities are not proprietary. *First Report and Order* ¶ 446. There have been no changes in transmission facilities since the Commission promulgated the *First Report and Order* that would warrant any other conclusion.

[190] Dedicated transport made available through existing LEC interstate access tariffs is not material to the Section 251(d)(2) analysis. As the Commission has held, incumbent LECs may not "avoid Section 251(c)(3)'s unbundling obligations" by offering network elements "as retail services" at higher prices. *First Report and Order* ¶ 287. In any event, as described in greater detail below, even if the access tariffs were relevant, the rates imposed by those tariffs would limit the ability of CLECs to deploy their own switches or OS/DA platforms at certain customer volumes that would otherwise support the use of such facilities.

and other parties, (ii) paying the fees imposed by such agreements, (iii) leasing and preparing collocation space, and (iv) acquiring and deploying dedicated transport equipment.

It therefore is not surprising that access to unbundled dedicated transport is consistent with Congressional intent and with the expectations of most participants in the *First Report and Order* proceedings. Congress made unbundling of dedicated transport a prerequisite to BOC provision of in-region interLATA telecommunications services, and thus undoubtedly envisioned that incumbent LECs would make these facilities available as unbundled network elements.[191] In addition, in the *First Report and Order* proceeding, most parties, including several incumbent LECs and state commissions, supported the unbundling of dedicated transport.[192] Similarly, no party voiced disagreement regarding the technical feasibility of providing dedicated transport on an unbundled basis.[193]

1. Dedicated Transport Is Necessary For The Development Of Facilities-Based Competition.

The availability of dedicated transport at competitive rates, without limitations on the telecommunications services provided over those facilities, is central to fostering facilities-based competition. Indeed, unbundled dedicated transport provides an essential bridge for CLECs to evolve from network element-based to facilities-based competition. For example, dedicated

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[191] 47 U.S.C. § 271(c)(2)(B)(v).

[192] *First Report and Order* ¶¶ 429, 438. Even the Telcomp Model presently advocated by BellSouth assumes that CLECs will have access to dedicated transport as an unbundled element. Boyles/Klick/Pitkin Aff. *passim*.

[193] *First Report and Order* ¶¶ 431, 439, 442.

transport is a necessary prerequisite to a CLEC's ability to (i) deploy its own local switches, and (ii) provision its own local OS/DA services at many end offices.[194]

CLEC local switches. In order to compete effectively, a new entrant must have a rapid and cost-effective means to connect the switches that it deploys. In addition, because current Commission rules prohibit CLECs from collocating host circuit switches in incumbent LEC wire centers,[195] a CLEC also must have a rapid and cost-effective means to extend its customers' loops from the incumbent LEC's central office (where the loops now terminate) to the new entrant's switching location. As the Commission has recognized, this interconnection is most readily and efficiently accomplished through the use of unbundled dedicated transport.[196]

CLEC OS/DA services. Similarly, if an entrant relying on unbundled local switching wishes to deploy its own local OS/DA services, it must have a means to deliver its customers' local OS/DA traffic to its OS/DA platform using interoffice transport facilities.[197] At many wire centers, CLECs will have no choice but to rely on dedicated transport for this purpose. Even an AIN based solution – today's most promising solution to current customized routing problems – does not eliminate this requirement. Thus, absent the availability of dedicated transport, a CLEC could not provide its own local OS/DA services at many wire centers under a wide range of network configurations.

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[194] In states that require that dedicated transport, rather than a local loop, be utilized to connect a PBX to the local switch, unbundled dedicated transport also is necessary to provide connectivity to some customer locations.

[195] *See* First Report and Order and Further Notice of Proposed Rulemaking, *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, 1999 WL 176601 (F.C.C.) ¶ 30 (rel. March 31, 1999) ("*Sec. 706 Collocation Order*").

[196] *First Report and Order* ¶ 447.

[197] *See infra* Section IV.G.1.

2. There Are No Adequate Alternatives To Unbundled Dedicated Transport.

If incumbent LECs are not required to provide access to dedicated transport on an unbundled basis, CLECs will be forced to either self-provide this critical network element or to utilize third-party vendors. These alternatives entail excessive costs, delays, and limitations on the CLECs' addressable customer base that prevent them from serving as effective means to develop widespread local competition.

a. Self-Provision of Dedicated Transport Is Not A Sufficient Alternative to Unbundled Dedicated Transport.

In order to self-provision dedicated transport, a CLEC generally must secure right-of-way and collocation arrangements. These negotiations not only impose excessive delay, they also may require the CLEC to incur costs and accept conditions that are substantially more burdensome than those faced by the incumbent LEC.

As William S. Beans, Jr., Meredith R. Harris, and M. Joseph Stith explain in their joint affidavit, CLEC deployment of dedicated transport involves a time consuming and costly four-step process.[198] First, the CLEC must attempt to negotiate a right-of-way agreement with the appropriate local municipality. In the vast majority of these negotiations, the municipality exploits its disproportionately powerful negotiating position and attempts to impose exorbitant fees and other onerous conditions on CLECs seeking such agreements.[199] As a result, CLECs have incurred significant delays and costs in negotiating and litigating these agreements. CLECs also have been forced to accept these burdensome fees and conditions in order to avoid losing

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[198] Affidavit of William S. Beans, Jr., Meredith R. Harris, and M. Joseph Stith ("Beans/Harris/Stith Aff.") at ¶ 5.

[199] *Id.* ¶ 9.

potential customers unwilling to accept such delays. Second, even after CLECs obtain such agreements from the local municipality, they will experience additional delays and costs when they seek to obtain existing right-of-way capacity from incumbent LECs or other parties, or if they seek to develop new capacity.[200] Third, CLECs must acquire the necessary collocation space and prepare that space to support interoffice transmission facilities.[201] Finally, CLECs must purchase dedicated transport equipment and then deploy, test, and activate the facility.[202]

The lengthy delays and excessive costs associated with this process will significantly undermine widespread competitive entry. As one facilities-based competitor has pointed out, "time to market is critical, as a telecommunications carrier's request to a utility for a pole attachment agreement is often prompted by the need to construct facilities to serve a particular customer."[203] Despite this need for immediate action, the typical right-of-way negotiation process takes approximately four to six months to complete, and in some instances negotiations have dragged on for years.[204] In addition, it takes CLECs an average of six to seven additional months to obtain and prepare collocation space, and to deploy and activate their own dedicated transport facilities.[205] Thus, a minimum of nine months, and an average of ten to twelve months,

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[200] *Id.* ¶ 30.

[201] *Id.* ¶¶ 33-34.

[202] *Id.* ¶¶ 35-39.

[203] Comments of ICG Communications, Inc. at 11, *Implementation of Section 703(e) of the Telecommunications Act of 1996, Amendment of the Commission's Rules and Policies Governing Pole Attachments*, CS Docket No. 97-151 (filed Sept. 26, 1997).

[204] Beans/Harris/Stith Aff. ¶¶ 6 & n.2, 10.

[205] *Id.* ¶ 6 & n.2. Although the steps of the self-provisioning process can, to a certain extent, proceed in parallel, the process nonetheless takes an average of ten to twelve months to complete (continued . . .)

may pass before a CLEC can enter a local market, and in some instances the ability to enter may be delayed for years.[206] The expenditures required to negotiate right-of-way agreements and to build dedicated transport facilities, which in most cases will be duplicative of the incumbent LECs' existing facilities, also are enormous.[207] And, because there are over 20,000 incumbent LEC offices, these delays and costs significantly impair broad scale market entry and provide the incumbent LECs with a substantial competitive advantage.

Significantly, the burden imposed on CLECs by these costs and delays is not limited to a CLEC's efforts to first "enter" a particular local market.[208] These delays and costs impose *continuing* competitive disadvantages on CLECs even after such entry occurs. Indeed, every time a decision is made to compete for a particular customer served by a particular end office, the CLEC will incur these delays and costs, and many months (or years) may pass before the CLEC can offer service to that customer.[209] This time interval not only is several times longer than that typically required to provide service through the use of unbundled dedicated transport, it also is much longer than that faced by the incumbent LEC, who can promise to provide service to a customer many times faster than its competitors.[210]

(. . . continued)
from start to finish (*i.e.*, from mapping out a potential route to actually providing service). *Id.* ¶ 6 & n.1.

[206] *Id.* ¶ 6.

[207] *Id.* ¶¶ 6, 30-31, 34-35, 37, 39.

[208] *Id.* ¶ 6.

[209] *Id.*

[210] *Id.* Further, in some instances, CLEC self-provision of dedicated transport may be impossible. For example, if a CLEC relies on unbundled local loops to provide service, it typically must collocate in the incumbent LEC's end office that serves the customer in order to (continued . . .)

Rights-of-way. A significant and growing trend in the telecommunications industry is for local municipalities to adopt ordinances that require CLECs to obtain right-of-way agreements (sometimes referred to as "franchise" agreements) before they begin to provide local service.[211] Many municipalities, when presented with such requests by CLECs, have sought, in many cases successfully, to use their approval authority to extract revenues and burdensome concessions from CLECs that must use public rights-of-way.[212] As a result, CLECs have been forced to engage in protracted, and often fruitless, negotiation, followed by lengthy litigation, all of which hinders their ability to enter the market or to otherwise provide service in response to customer demand.[213] For example, after more than four years of unsuccessful negotiation, AT&T's local subsidiary has been unable to secure the statutorily required permit to provide service in the City of Dearborn, Michigan, and has been forced to file a lawsuit to vindicate its rights under the 1996 Act and the Michigan Telecommunications Act.[214] The City continues to

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extend those loops to the location where the CLEC has located its switch. The incumbent LECs have argued on numerous occasions to the Commission and state utility commissions that many of their end offices have no available collocation space. In those instances, self-provided dedicated transport would be an impossibility. The same is true when existing right-of-way capacity has been exhausted.

[211] *Id.* ¶ 8.

[212] *Id.* ¶¶ 8-9.

[213] *Id.* ¶ 10. If the Commission were to conclude that incumbent LECs are not required to unbundle dedicated transport, the Commission undoubtedly would be faced with the prospect of additional petitions seeking preemption of municipal regulations that impose excessive or discriminatory right-of-way fees or conditions on new entrants.

[214] *Id.* ¶¶ 11-19. AT&T's subsidiary, TCG Detroit, was forced to enter into a limited, onerous, and discriminatory interim agreement with the City of Dearborn in order to provide service to an important customer. *Id.* ¶ 18. This interim agreement, however, does not provide a sufficient basis on which TCG Detroit can continue to develop its local network. Furthermore, due to the interim agreement's onerous terms and the uncertainty surrounding the outcome of the current
(continued . . .)

insist that AT&T's local subsidiary pay an excessive franchise fee equal to four percent of its gross revenues, even though the incumbent LEC, Ameritech Michigan, is not required to pay such a fee.[215] In addition, CLECs often must accept these burdensome conditions to avoid losing customers who are unwilling to tolerate the excessive delays caused by the negotiation and litigation process.[216]

Even after CLECs obtain such agreements, they may experience additional delays and costs if they seek to obtain existing right-of-way capacity from incumbent LECs or other parties, such as utilities and railways.[217] Disputes between CLECs and these parties are likely to be commonplace as the demand for access to rights-of-way increases. Although the Commission has a complaint process to resolve disputes over access to rights-of-way, there is no deadline for completion of that process.

In addition, the rates that CLECs must pay incumbent LECs and other parties to access their right-of-way capacity may be prohibitively expensive, despite the fact that such rates are

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litigation, TCG Detroit has been required to keep its local network development in Dearborn in a state of virtual limbo pending the outcome of the litigation, and has been forced to decline the opportunity to provide service to other significant customers. *Id.*

[215] *Id.* ¶¶ 10, 16-17.

[216] *Id.* ¶ 5. *See also, e.g.*, Comments of ICG Communications, Inc. at 11, *Implementation of Section 703(e) of the Telecommunications Act of 1996, Amendment of the Commission's Rules and Policies Governing Pole Attachments*, CS Docket No. 97-151 (filed Sep. 26, 1997) ("[c]arriers are commonly faced with the choice of agreeing to a utility's proposed rate in order to obtain an agreement in time to serve the customer or filing an access or rate complaint with the Commission that stands little chance of being resolved before service to the customer must commence").

[217] Beans/Harris/Stith Aff. ¶ 30.

theoretically limited by Section 224 of the Communications Act.[218] For example, in those instances where the necessary rights-of-way do not contain conduits (or other structures) with available capacity, no Commission rate formula exists to govern the prices incumbent LECs may charge. Hence, even though the rates that incumbent LECs can charge for use of those rights-of-way may be limited in principle, a CLEC cannot know what rates it will actually be faced with until it completes the negotiation process and, if necessary, the Commission resolves any rate disputes through its case-by-case adjudication process.[219]

Collocation-related delays and costs. Once a CLEC resolves right-of-way issues, it generally must then collocate equipment in the incumbent LEC's end offices. Even under the most favorable negotiating conditions, this process can take months to complete as the incumbent LEC and new entrant work out details such as costs, space requirements, the types of equipment that can be collocated, the types of construction the incumbent LEC must perform, power supply needs, and arrangements for CLEC access to the collocation space.[220] In order to make use of collocation space, CLECs also must incur space preparation costs. In some states,

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[218] *See* 47 U.S.C. § 224.

[219] *See* Report and Order, *Implementation of Section 703(e) of the Telecommunications Act, Amendment of the Commission's Rules and Policies Governing Pole Attachments*, 13 FCC Rcd. 6777 (1998) ("*Pole Attachment Order*") ¶ 121.

[220] Beans/Harris/Stith Aff. ¶ 33. The *Sec. 706 Collocation Order* should help accelerate the collocation process, but some incumbent LECs have indicated that they plan to challenge that order. In any event, the Commission and local exchange carriers have no experience yet in implementing the order. In addition, right-of-way issues present the same types of concerns that the Commission addressed in the *Sec. 706 Collocation Order* – monopoly control over scarce space. Even if one assumes the *Sec. 706 Collocation Order* will prevent incumbent LEC abuses with respect to collocation, the right-of-way issues remain both unresolved and equally limiting to the CLECs' ability to compete.

these non-recurring charges increase the cost of entry for a single end office by $30,000 to hundreds of thousands of dollars.[221]

Equipment purchasing costs and deployment delays. The CLEC also will incur significant costs and delays in self-deploying dedicated transport equipment. In order to provide its own dedicated transport, a CLEC must collocate extensive amounts of equipment, including fiber distribution panels ("FDPs"), optical terminating equipment, an OC3 add/drop multiplexer ("OC3 ADM"), digital cross connects, test access equipment, digital loop carrier ("DLC") equipment, power distribution panels, and cable racks. The cost for the DLC and associated equipment is approximately $117 per analog loop,[222] and all of the costs associated with acquiring and deploying the other equipment listed above must be added to this DLC figure to obtain the full costs of dedicated transport self-provision. Such additional costs can be twice as large as the required investment in the DLC equipment.[223]

Furthermore, deploying fiber optics between two offices also is an expensive undertaking. When no conduit capacity is available, the CLEC must dig a trench between the two offices, install conduit, and restore the right-of-way (*e.g.*, backfill the trench and replace road surfaces and sidewalks). In densely populated areas, deploying a new conduit system costs in the range of $200,000 to 300,000 per mile.[224] Even in those instances where the facilities can be buried (rather than placed in conduit), the cost is still about $75,000 to $100,000 per mile.[225]

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[221] Beans/Harris/Stith Aff. ¶ 31. *See also* Pfau Aff. ¶ 25 & n.9.

[222] Beans/Harris/Stith Aff. ¶¶ 33.

[223] *Id.* ¶ 35.

[224] *Id.* ¶ 37.

[225] *Id.*